

PVC Replaces Eroding Pipe Line

Easy installation saves time and money.

Saving money and finishing a project two weeks ahead of schedule was not what Sam Tenorio, a mechanical engineer who is also a project and construction manager, anticipated when he agreed to try a new polyvinyl chloride product. In fact, despite a 50-year warranty, he was reluctant to put his trust in something unfamiliar, especially when the stakes were so high. The corroding steel water line his firm would replace had sparked considerable public debate. He could not afford setbacks.

But when the complications he feared did not materialize, a skeptical Tenorio became a believer in Ultra Blue C909 manufactured by JM Eagle (www.jmeagle.com), a lightweight molecularly oriented PVC pipe also known as PVCO. The benefits were almost too good to be true. The new, innovative product would definitely please clients and allow him to stay way ahead of his competitors.

“Every job deadline has a margin,” says Tenorio. “Normally you expect to finish three days ahead or behind. But by the

time we got to the end of this project, we realized we were two weeks ahead. I’ve worked with this crew for the last six years and we’ve never seen anything go this fast.”

The project moved quickly because the PVCO—a high-performance pressure pipe for potable water and force main systems—is so light each section of six-, eight- and 12-in. pipe can be lifted and moved by one man, compared with the two or three men needed to install a section of pipe made of ductile iron, steel, or cement.

Also, PVCO pipe can be cut with a fine-toothed hacksaw, handsaw, or a power-type saw with a steel blade or abrasive disc. The joint connection is a push-on assembly nearly as simple as a LEGO building block. The lubricated spigot end is inserted under the rubber gasket and into the bell end of the pipe. All of this removes the need for a welder, which can be a safety hazard when working in heat that often exceeds 100 degrees.

And yet the PVCO is also incredibly strong. When a piece

The PVC pipe is actually so light that each section of six-, eight-, and 12-in. pipe can be lifted and moved by one man if necessary.



of heavy machinery blew a tire, a section of C909 was used to prop up the vehicle until it could be repaired.

Tenorio's crew installed the PVC parallel to an existing 25,000-ft steel pipeline that runs along State Highway 178 in Ridgecrest, CA. The job was commissioned by Searles Valley Minerals (SVM), the entity in nearby Trona that is responsible for the waterline. SVM executives decided to build a parallel line to avoid the exorbitant cost of excavating eroding steel. But that did not mean the pipeline installed in the 1940s would not come with its own added price tag.

When Tenorio first analyzed the project for SVM, the steel pipeline was experiencing two new leaks per week. That number doubled by the time the project was approved by local officials in 2010.

Repairing a rusty relic while installing traditional PVC often can slow down and frustrate the best of crews. But not this time. The C909 was so easy to work with, Tenorio soon discovered that he could free up one or two members of his 12-man crew to fix leaks and still stay ahead of schedule.

"We had a good method in place," he says. "Despite all the leaks in the old line, we mobilized well and continued to move ahead with the new pipe. It was almost too good to be true."

The speedy progress removed some of the pressure Tenorio naturally felt when the local newspaper reported that the archaic steel pipe would finally be replaced. Although citizens and public officials cheered, they also wanted the project to be finished fast—and for good reason.

The stretch of decaying 12-in. steel pipeline had earned a notorious reputation. The frequent ruptures made the community wary of a major break in the water works. Such an event would have been devastating because the pipeline supplies potable water to Trona, Ridgecrest, and several SVM processing plants.

There was another scare factor, as well. The leaky steel pipe caused visible puddles of water on the shoulders of State Highway 178. Some feared the water could spread to the surface of the highway and cause auto accidents. But the deeper fear was that water seepage might cause the soil under the

highway to compact. This condition—invisible to the naked eye—could cause the pavement to collapse into a sinkhole.

No one doubted that replacing the steel was inevitable. Tenorio believes that the pipe was a disaster waiting to happen because erosion had likely reduced the original 1/4-in. thickness to about 1/16 of an inch—way too thin to withstand the pressure of surging water. But the \$3-million cost was thought to be prohibitive, and approval would require cooperation between the cities of Ridgecrest and Trona, SVM, and Caltrans, which owns the highway.

The durability and track record of the pipe won the confidence of the community, which needed assurances that the water supply and nearby highways would be safe. Tenorio's keen eye for trimming fat from a budget also helped.

"This project was a big deal for the community—like a grand opening or something," says Tenorio, who added that old pipe has since been filled with cement and capped. "They're finally going to have something that is modern and stable. Their water is now running through a pipe that won't leak and shut them down."

Despite Tenorio's initial reluctance to use C909, he was impressed with JM Eagle's unprecedented 50-year warranty announced in early 2010. Even more impressive was the signed letter Tenorio received from the firm expressing support for the PVC and high-density polyethylene pipe used in water transmission and distribution lines, as well as forced sewer mains.

"Not knowing the product, I was a little hesitant," he says. "I need to be 100 percent sure when something is new. But JM Eagle was supportive. I felt really comfortable having someone send me a letter, direct from the department head, that confirmed they stand by their product."

The success of the SVM project has replaced Tenorio's healthy skepticism with high hopes. If he specifies the time and money-saving aspects of C909 in his bids, he believes he will be far more competitive than anyone in the market.

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